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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/489,286      | 01/21/2000  | David A. Cathey      | 2269-7129.2US       | 5649             |

63162 7590 02/21/2008  
TRASK BRITT, P.C./ MICRON TECHNOLOGY  
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SALT LAKE CITY, UT 84110

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| EXAMINER |
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PATEL, ASHOK

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| ART UNIT | PAPER NUMBER |
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2889

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| NOTIFICATION DATE | DELIVERY MODE |
|-------------------|---------------|

02/21/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USPTOMail@traskbritt.com

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/489,286 | <b>Applicant(s)</b><br>CATHEY ET AL. |  |
|                              | <b>Examiner</b><br>Ashok Patel       | <b>Art Unit</b><br>2879              |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 November 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 33-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

Art Unit: 2879

1. Applicant's arguments with respect to claims 33-39 have been considered but are moot in view of the new ground(s) of rejection.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 33, 37 and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Cathey (USPN 6,825,596) or Cathey (USPN 5,532,177) or Cathey (USPN 7,064,476), applied individually.

As to claims 33, 37 and 39, each of the above-mentioned Cathey prior art references individually disclose applicant's claimed field emission display (Figures 1-5) including:

an anode (16); a cathode (21);

the anode and the cathode sealed together and spaced apart to define an evacuated space therebetween; and

Art Unit: 2879

a plurality of electron emitters (13) protruding from a surface of the cathode, each of the emitters having a tip for emitting electrons to the anode, having silicon and having an electropositive element (phosphorous - which belongs to Group IIIA of the periodic table) distributed throughout a body and at its surface (Cathey, USPN 6,825,596, col. 3, lines 39-47; or Cathey, USPN 5,532,177, col. 3, lines 38-46; or Cathey, USPN 7,064,476, col. 4, lines 9-17).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 34-36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cathey (USPN 6,825,596) or Cathey (USPN 5,532,177) or Cathey (USPN 7,064,476).

As to claim 34, none of three Cathey prior art references disclose the electropositive element substantially distributed throughout the body, as claimed by applicant. However, since it is known in the art to provide the electropositive element

Art Unit: 2879

(impurity) in a variety of ways, it would have been obvious to one of ordinary skill in the art to provide the emitters with a desired distribution of the electropositive element into the emitters for modifying the emission characteristics of the emitters.

Each of the three Cathey prior art references does not disclose the electropositive element being an element selected from the group consisting of IA or IIA of periodic table or Cs or H, Li, Be, B, Na, Mg, Al, Ga, Ba, Rb, Ca, K, Sr, In or Group IIa, as recited in applicant's claims 35-38.

However, since use of these electropositive elements as impurities is known in the art of field emission display for optimizing electrical conductivity of the emitters, it would have been obvious to one of ordinary skill in the art to provide the field emission display of each of the Cathey prior art references for optimizing the electrical conductivity of the emitters.

6. Claims 33-39 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 6515414. Although the conflicting claims are not identical, they are not patentably distinct from each other because U.S. Patent 6,515,414 recites applicant's

Art Unit: 2879

claimed field emission display including anode, cathode and a plurality of emitters, as claimed by applicant.

| U.S. Patent Application 09/489,286   | U.S. Patent 6,515,414 |
|--|-----------------------|
| Claim 33. A field emission display comprising:<br>an anode;<br>a cathode;<br>the anode and the cathode sealed together and spaced apart to define an evacuated space therebetween; and<br>a plurality of electron emitters protruding from a surface of the cathode, each of the emitters having a tip for emitting electrons to the anode, comprising silicon and having an electropositive element distributed throughout a body and at a surface thereof. | Claim 1               |
| Claim 34: The field emission display of claim 33, wherein the electropositive element is substantially evenly distributed throughout the body.   | Claim 2.              |
| Claim 35: The field emission display of claim 33, wherein electropositive element is an element selected from the group consisting of Group IA of the periodic table.  | Claim 3.              |
| Claim 36: The field emission display of claim 33, wherein electropositive element comprises Cs.  | Claim 4.              |
| Claim 37: The field emission display of claim 33, wherein electropositive element is an element selected from the group consisting of H, Li, Be, B, Na, Mg, Al, Ga, Ba, Rb, Ca, K, Sr, and In.   | Claim 5.              |

Art Unit: 2879

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| Claim 38. The field emission display of claim 33, wherein electropositive element is an element selected from the group consisting of Group IIA of the periodic table.  | Claim 6. |
| Claim 39: The field emission display of claim 33, wherein electropositive element is an element selected from the group consisting of Group IIIA of the periodic table. | Claim 7. |

A terminal disclaimer filed by applicant on 11/27/2007 is acknowledged and will be processed in its due course.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashok Patel whose telephone number is 571-272-2456. The examiner can normally be reached on Monday-Thursday.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Ashok Patel/  
**Ashok Patel**  
**Primary Examiner**  
**Art Unit 2879**